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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/970,960	10/04/2001	Michael Thomas Swab	US 010508	2668

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[REDACTED] EXAMINER

SPEARS, ERIC J

ART UNIT	PAPER NUMBER
	2878

DATE MAILED: 07/17/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)
	09/970,960	SWAB, MICHAEL THOMAS
	Examiner Eric J Spears	Art Unit 2878

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) Responsive to communication(s) filed on 04 October 2001.
- 2a) This action is FINAL. 2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) Claim(s) _____ is/are allowed.
- 6) Claim(s) 1-20 is/are rejected.
- 7) Claim(s) _____ is/are objected to.
- 8) Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on 04 October 2001 is/are: a) accepted or b) objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) The proposed drawing correction filed on _____ is: a) approved b) disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) All b) Some * c) None of:
1. Certified copies of the priority documents have been received.
2. Certified copies of the priority documents have been received in Application No. _____.
3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) The translation of the foreign language provisional application has been received.
- 15) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) Notice of References Cited (PTO-892) 4) Interview Summary (PTO-413) Paper No(s). _____ .
- 2) Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) Notice of Informal Patent Application (PTO-152)
- 3) Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ . 6) Other: _____ .

DETAILED ACTION

Specification

The disclosure is still objected to because it contains an embedded hyperlink and/or other form of browser-executable code on page 1. Applicant is required to delete the embedded hyperlink and/or other form of browser-executable code. See MPEP § 608.01.

Drawings

The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the pick and place machine, the surface mount tool, the source of surface mount components, the manipulator, and the control system must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claim 20 stands rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention. The specification does not teach or mention using circularly polarized light, but rather only linearly polarized light.

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 17-20 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Regarding Claim 17, the recitation of the phrase "radiation scattered...orthogonal to said first direction" renders the claim indefinite because the claim does not recite how the radiation is orthogonal. It will be assumed to mean the radiation is polarized in a direction orthogonal to the original polarization.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

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(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-4, and 7-10 stand rejected under 35 U.S.C. 102(b) as being anticipated by Ninomiya et al. (5,459,794).

Regarding Claim 1, Ninomiya teaches a method of visualization of a part 14 having metallic objects against a non-metallic background comprising illuminating the part with electromagnetic radiation that is linearly polarized in a predetermined first direction, and forming an image S1 of electromagnetic radiation reflected from the part viewed through a linear polarization filter oriented for passing electromagnetic radiation that is linearly polarized in a second direction that is substantially orthogonal to the first direction, whereby in the formed image, an enhanced contrast between the metallic objects and the background is produced (Col. 6 line 65 to Col. 7, line 23).

Regarding Claim 2, Ninomiya teaches recognizing the metallic objects in the formed image (See Abstract).

Regarding Claim 3, Ninomiya teaches the electromagnetic radiation is light, and the image is formed by a camera (Col. 6 line 65 to Col. 7, line 23; Se Fig. 1).

Regarding Claim 4, Ninomiya teaches the electromagnetic radiation is light, the image is formed by a camera of a computer vision system, and said recognizing is performed by the computer vision system (Col. 8, lines 17-39).

Regarding Claim 7, Ninomiya teaches an apparatus for visualization of a part having metallic objects against a non-metallic background comprising: one or more sources for illuminating the part with electromagnetic radiation that is linearly polarized (11 and 12), at least one of the sources producing electromagnetic radiation that is

linearly polarized in a predetermined first direction, and an image forming device 16 for forming an image of electromagnetic radiation reflected from the part viewed through a linear polarization filter 15 oriented for passing electromagnetic radiation that is linearly polarized in a second direction that is substantially orthogonal to the first direction, whereby in the formed image, an enhanced contrast between the metallic objects and the background is produced (Col. 6 line 65 to Col. 7, line 23).

Regarding Claim 8, Ninomiya teaches a computer vision system for recognizing the metallic objects in the formed image (See Abstract).

Regarding Claim 9, Ninomiya teaches the electromagnetic radiation is light, and the image forming device is a camera (Col. 6 line 65 to Col. 7, line 23; Se Fig. 1).

Regarding Claim 10, Ninomiya teaches the electromagnetic radiation is light, and the image forming device is a camera of the computer vision system (Col. 8, lines 17-39).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claim 13 stands rejected under 35 U.S.C. 103(a) as being unpatentable over Ninomiya et al. (5,459,794).

Regarding Claim 13, Ninomiya does not explicitly teach such a manipulator. However, the use of pick-and-place machines for this purpose is well known in the art as shown by Fishbaine et al. (6,538,750). Therefore, it would have been obvious to one of ordinary skill in the art to use the inspection apparatus of Ninomiya with a pick and place machine as recited in Claim 13, as the use of pick-and-place machines are well known in the art, in order to eliminate the manual labor involved in placing parts if assembled products.

Claims 5, 6, 11, 12, and 14 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Ninomiya et al. (5,459,794) in view of Ludlow et al. (6,201,892).

Regarding Claims 5, 6, 11, and 12, Ninomiya does teach the background being a ceramic (i.e. a dielectric) (Col. 7, lines 4-7). Ninomiya does not teach a ball grid array. However, Ludlow teaches using a light imaging inspection system for inspecting a ball grid array (Col. 5, lines 50-62). Therefore, it would have been obvious to one of ordinary skill in the art to use the device or method of Ninomiya with a ball grid array as taught in Ludlow, as the inspection of BGAs is well known in the art as shown by Ludlow, in order to provide for a common type of specimen in the device of Ninomiya. Further, the precise type of part used with the method of Ninomiya would have been an obvious intended use choice to one of ordinary skill in the art.

Regarding Claim 14, Ninomiya does not explicitly teach such a manipulator. However, the use of pick-and-place machines for this purpose is well known in the art as shown by Fishbaine et al. (6,538,750). Therefore, it would have been obvious to one

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of ordinary skill in the art to use the inspection apparatus of Ninomiya with a pick and place machine as recited in Claim 14, as the use of pick-and-place machines are well known in the art, in order to eliminate the manual labor involved in placing parts if assembled products.

Claims 17-20 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Ninomiya et al. (5,459,794) in view of Fishbaine et al. (6,538,750).

Regarding Claims 17 and 20, Ninomiya teaches an apparatus for visualization of a part having metallic objects against a non-metallic background comprising: one or more sources for illuminating the part with electromagnetic radiation that is linearly polarized (11 and 12), at least one of the sources producing electromagnetic radiation that is linearly polarized in a predetermined first direction, and an image forming device 16 for forming an image of electromagnetic radiation reflected from the part viewed through a linear polarization filter 15 oriented for passing electromagnetic radiation that is linearly polarized in a second direction that is substantially orthogonal to the first direction, whereby in the formed image, an enhanced contrast between the metallic objects and the background is produced (Col. 6 line 65 to Col. 7, line 23).

Further regarding Claim 17, Ninomiya does not explicitly teach such a manipulator or control system. However, the use of pick-and-place machines which include manipulators, control systems, and part inspection are well known in the art as shown by Fishbaine et al. (6,538,750). Therefore, it would have been obvious to one of ordinary skill in the art to use the inspection apparatus of Ninomiya with a pick and

place machine as recited in Claim 14, as the use of pick-and-place machines are well known in the art, in order to eliminate the manual labor involved in placing parts if assembled products.

Regarding Claim 18, The modified device of Ninomiya teaches picking an placing components. The modified device further teaches inspecting prior to placement and discarding unwanted/faulty pieces (See Ninomiya (Col. 4, lines 50-53); See Fishbaine Fig. 9b).

Regarding Claim 19, the modified device of Ninomiya teaches a circuit board (See Fishbaine Fig. 3b).

Response to Arguments

Applicant's arguments filed 4/24/2003 have been fully considered but they are not persuasive.

In response to applicant's argument that the amendment to Claim 1 reciting a pick and place machine, a recitation of the intended use of the claimed invention must result in a structural difference between the claimed invention and the prior art in order to patentably distinguish the claimed invention from the prior art. If the prior art structure is capable of performing the intended use, then it meets the claim. In a claim drawn to a process of making, the intended use must result in a manipulative difference as compared to the prior art. See *In re Casey*, 152 USPQ 235 (CCPA 1967) and *In re Otto*, 136 USPQ 458, 459 (CCPA 1963). A recitation as to what type of device is used to perform the claimed method does not place any limitation upon the claimed method.

It should be noted that the claim recites no further limitations upon the pick and place machine or upon the method of using the pick and place machine.

In response to applicant's argument that the amendment to Claim 7 reciting a pick and place machine, a recitation of the intended use of the claimed invention must result in a structural difference between the claimed invention and the prior art in order to patentably distinguish the claimed invention from the prior art. If the prior art structure is capable of performing the intended use, then it meets the claim. In a claim drawn to a process of making, the intended use must result in a manipulative difference as compared to the prior art. See *In re Casey*, 152 USPQ 235 (CCPA 1967) and *In re Otto*, 136 USPQ 458, 459 (CCPA 1963). A recitation of a certain type of device which contains an invention does not place any limitation upon that invention. It should be noted that the claim recites no elements of the surface mount tool other than the apparatus for visualization.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not

mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Eric Spears whose telephone number is (703) 306-0033. The examiner can normally be reached on Monday-Friday from 10:00am to 6:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Dave Porta can be reached on (703) 308-4852. The fax phone number for the organization where this application or proceeding is assigned is (703) 308-7724.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.

EJS
07/12/03



Que T. Le
Primary Examiner